PROPOSED

PERMIT APPLICATION REVIEW
COVERED SOURCE PERMIT NO. 0081-01-C
Application for Renewal No. 0081-06

Company:	Chevron Products Company
Mailing Address:	100-A Hobron Avenue Kahului, Hawaii 96732
Facility:	Chevron Products Company Kahului Marketing Terminal
Location:	100-A Hobron Avenue, Kahului, Maui UTM: Zone 4, 764,697 m E, 2,312,892 m N (NAD 83)
SIC Code:	5171 (Petroleum Bulk Stations and Terminals)
Responsible Official:	Hugh Meshell Terminal Manager Ph: (808) 357-1041
Site Contact:	John Aweeka Environmental, Safety and Health Specialist Ph: (808) 492-7806 Email: JohnAweeka@chevron.com

BACKGROUND

Chevron Products Company has submitted an application to renew its covered source permit no. 0081-01-C that was issued on November 9, 2010 and modified on June 18, 2014. No modifications are proposed.

Gasoline, distillate products, additives and denatured ethanol are received primarily from the Chevron Honolulu Marine Terminal on Oahu via barges, and then stored in the aboveground storage tanks at the Kahului Terminal. Occasionally product is received from other sources. Denatured ethanol and other additives are blended into the gasoline at the loading rack in order to meet current state gasoline blending requirements. Although the terminal is currently only storing and distributing motor gasoline, diesel fuel and denatured ethanol, terminal operational flexibility and market variations may dictate distribution of other petroleum products in the future.

Products are dispensed into trucks for distribution to wholesale or retail markets. Trucks are loaded at a bottom loading load rack. The load rack is equipped with a vapor combustion unit (VCU) along with a vapor collection system (VCS) to control volatile organic compounds (VOCs) and hazardous air pollutants (HAPs). The total combined throughput of the load rack is limited to 5,631,429 barrels (236,520,018 gallons) per year of gasoline (e.g., motor gasoline, aviation gasoline, naphtha/whole straight run gasoline, etc.).

Denatured ethanol and transmix don't meet the definition of "gasoline" in accordance with Federal Register Vol. 76, No. 15. Tank no. 2 is not a gasoline storage tank when storing

denatured ethanol but might be used to store gasoline in the future. Tank no. 20 stores transmix only and is thus not a gasoline storage tank.

EQUIPMENT DESCRIPTION

1. Bottom loading load rack with two (2) loading lanes and six (6) product load arms per loading lane;
2. VCS with 4,800 gallon per minute capacity John Zink VCU, model no. ZCT-2-8-35-X-2/8-X-X, serial no. VC-954547; and
3. Six (6) storage tanks that are storing gasoline or will store gasoline as a worst-case scenario:

Tank No.	Working Capacity (gal)	Tank Description	Current Liquid Content[1]
1	372,414	Internal floating roof with mechanical shoe primary seal	Regular Unleaded Gasoline
2	98,574	Internal floating roof with mechanical shoe primary seal	Denatured Ethanol
7	60,984	Internal floating roof with mechanical shoe primary seal	Out of Service
9	52,794	Internal floating roof with mechanical shoe primary seal	Regular Unleaded Gasoline
11	493,668	Internal floating roof with mechanical shoe primary seal	Regular Unleaded Gasoline
13	177,660	Geodesic dome and internal floating roof with mechanical shoe primary seal	Super Unleaded Gasoline

[1] Based on the annual inspection conducted by the Clean Air Branch on 6/25/2014.

AIR POLLUTION CONTROLS

The bottom loading load rack is equipped with a VCU and a VCS to control VOC and HAP emissions. Tank Nos. 1, 2, 7, 9, 11, and 13 are equipped with internal floating roofs and tank seal systems to control VOC and HAP emissions.

APPLICABLE REQUIREMENTS

Hawaii Administrative Rules (HAR)
Title 11 Chapter 59, Ambient Air Quality Standards
Title 11 Chapter 60.1, Air Pollution Control
- Subchapter 1, General Requirements
- Subchapter 2, General Prohibitions
  - 11-60.1-31, Applicability
  - 11-60.1-39, Storage of Volatile Organic Compounds
  - 11-60.1-41, Pump and Compressor Requirements
- Subchapter 5, Covered Sources
- Subchapter 6, Fees for Covered Sources, Noncovered Sources, and Agricultural Burning
  - 11-60.1-111, Definitions

11-60.1-112, General Fee Provisions for Covered Sources
11-60.1-113, Application Fees for Covered Sources
11-60.1-114, Annual Fees for Covered Sources
11-60.1-114, Basis of Annual Fees for Covered Sources
Subchapter 8, Standards of Performance for Stationary Sources
11-60.1-161, New Source Performance Standards
Subchapter 9, Hazardous Air Pollutant Sources

Standard of Performance for New Stationary Sources (NSPS), 40 CFR Part 60
Subpart XX, *Standards of Performance for Bulk Gasoline Terminal* is applicable to the bottom loading load rack because the load rack was constructed after December 17, 1980.

Subpart Kb, *Standards of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) for which Construction, Reconstruction, or Modification Commenced after July 23, 1984* is not applicable to the gasoline storage tanks (Tanks nos. 1, 2, 7, 9, 11 and 13) due to the construction dates and capacities of the tanks. However, the gasoline storage tanks are required to operate in accordance with Subpart Kb as reference by 40 CFR Part 63, NESHAP, Subpart BBBBBB.

National Emission Standards for Hazardous Air Pollutants (NESHAP), 40 CFR Part 61
This terminal is not subject to NESHAP as there are no standards in 40 CFR Part 61 applicable to this source.

National Emission Standards for Hazardous Air Pollutants for Source Categories (Maximum Achievable Control Technology (MACT)), 40 CFR Part 63
Subpart BBBBBB, *National Emission Standards for Hazardous Air Pollutants for Source Category: Gasoline Distribution Bulk Terminals, Bulk Plants, and Pipeline Facilities* is applicable to the facility since it is an area source bulk gasoline terminal. The facility is designated a gasoline distribution bulk terminal because the gasoline throughput, based on the permit limit (236,520,018 gallons per year, equivalent to 648,000 gallons per day), is greater than 20,000 gallons per day. Option 2 from Table 2 of Subpart BBBBBB, applies to the load rack because the actual gasoline throughput is less than 250,000 gallons per day based on the monitoring reports submitted. Tank nos. 1, 2, 7, 9, 11 and 13 are also subject to this subpart because they are located at a gasoline distribution bulk terminal and are storing gasoline or will store gasoline as a worst-case scenario.

Prevention of Significant Deterioration (PSD), 40 CFR 52.21
This terminal is not subject to PSD requirements because it is not a major stationary source as defined in 40 CFR 52.21 and HAR Title 11, Chapter 60.1, Subchapter 7.

Compliance Assurance Monitoring (CAM), 40 CFR 64
This terminal is not subject to CAM since it is not a major source. The purpose of CAM is to provide a reasonable assurance that compliance is being achieved with large emissions units that rely on air pollution control device equipment to meet an emissions limit or standard. Pursuant to 40 CFR Part 64, for CAM to be applicable, the emissions unit must: (1) be located at a major source; (2) be subject to an emissions limit or standard; (3) use a control device to achieve compliance; (4) have potential pre-control emissions that are 100% of the major source level; and (5) not otherwise be exempt from CAM.

Air Emissions Reporting Requirements (AERR), 40 CFR Part 51, Subpart A
AERR is not applicable because potential emissions from the terminal do not exceed the AERR triggering levels (see table below).

Pollutant	Emissions (TPY)[1] [8,760 hr/yr]	AERR Triggering Levels (TPY)	
		1 year cycle (type A sources)	3 year cycle (type B sources)
CO	9.88	2500	1000
NO_X	3.95	2500	100
SO_2	0.069	2500	100
VOC	57.40	250	100
HAPs	1.61	-	-

[1] See Project Emissions section.

Department of Health (DOH) In-house Annual Emissions Reporting
The Clean Air Branch requests annual emissions reporting from those facilities that have facility-wide emissions exceeding in-house reporting levels and for all covered sources. This terminal is subject to annual emissions reporting requirements as a covered source.

Best Available Control Technology (BACT)
A BACT analysis is required for new sources or modifications to sources that have the potential to emit or increase emissions above significant levels considering any limitations as defined in HAR, Section 11-60.1-1. This terminal is not subject to a BACT analysis because it is an existing source with no proposed modifications.

Synthetic Minor Source
A synthetic minor source is a facility that is potentially major as defined in HAR 11-60.1-1, but is made non-major through federally enforceable permit conditions. This terminal is a synthetic minor source because the throughput limitation of 5,631,429 barrels (236,520,018 gallons) per year ensures that emissions from the facility are below major source thresholds.

INSIGNIFICANT ACTIVITIES

The following storage tanks, concrete sump and oil water separator are considered insignificant activities in accordance with HAR §11-60.1-82(f)(1) or §11-60.1-82(f)(7).

Tank No.	Working Capacity (gal)	Tank Description	Liquid Content	HAR Insignificant Activity Criteria
3	776,874	Vertical fixed roof	LSD[1]	§11-60.1-82(f)(7)
4	210,462	Vertical fixed cone roof	Jet A[2]	§11-60.1-82(f)(7)
5	148,932	Vertical fixed cone roof	ULSD[3]	§11-60.1-82(f)(7)
6	62,538	Vertical fixed cone roof	Jet A	§11-60.1-82(f)(7)
10	246,078	Vertical fixed cone roof	Jet A	§11-60.1-82(f)(7)
14	23,562	Vertical fixed cone roof	Out of service	§11-60.1-82(f)(1)
15	465,276	Vertical fixed cone roof	Out of service	§11-60.1-82(f)(7)
19	61,740	Vertical fixed cone roof	ULSD	§11-60.1-82(f)(7)
20	39,018	Vertical fixed cone roof	Transmix	§11-60.1-82(f)(1)
22	7,724	Horizontal fixed roof	Additive	§11-60.1-82(f)(7)
23	7,724	Horizontal fixed roof	Additive	§11-60.1-82(f)(7)
--	499	--	Propane	§11-60.1-82(f)(1)

Tank No.	Working Capacity (gal)	Tank Description	Liquid Content	HAR Insignificant Activity Criteria
--	9,800	Concrete sump	--	§11-60.1-82(f)(7)
--	350	Oil water separator	--	§11-60.1-82(f)(7)
49962	184	Horizontal fixed roof	Additive	§11-60.1-82(f)(7)
50750	184	Horizontal fixed roof	Additive	§11-60.1-82(f)(7)

[1] Low sulfur diesel
[2] Kerosene-type fuel
[3] Ultra low sulfur diesel

ALTERNATIVE OPERATING SCENERIOS

None proposed.

PROJECT EMISSIONS

Bottom Loading Load Rack Emissions

Potential emissions from the bottom loading load rack with VCU control are estimated based on the following:

1. Maximum permitted gasoline throughput of 5,631,429 barrels/yr (236,520,018 gal/yr);
2. Loading of gasoline into tank trucks as worst-case scenario;
3. Fugitive VOC emission factor of 8 mg per liter of gasoline loaded for tank truck loading (U.S. EPA's "*Protocol for Equipment Leak Emission Estimates*", 11/95);
4. Control of VOCs with the VCU operating in accordance with the federal requirement not to exceed 35 mg of VOC per liter of gasoline loaded (40 CFR Part 60, Subpart XX);
5. Emission factors of primary pollutants from the VCU (manufacturer's guaranteed control limitations):

    a. NO_X: 4 mg/l of gasoline loaded
    b. CO: 10 mg/l of gasoline loaded

6. Use of a mass balance calculation to determine SO_2 emissions from the VCU:

    There is no SO_2 emission factor in AP-42 available for gasoline vapor combustion. Available literature indicates that gasoline contains as much as 1,000 ppm (0.1%) sulfur (Manufacturers of Emission Controls Association's "*The Impact of Gasoline Fuel Sulfur on Catalytic Emission Control Systems*", 09/98). It's assumed that 0.1% sulfur is present in VOC emissions from the VCU stack and is 100% in the form of SO_2.

7. Vapor mass fractions for components of gasoline are multiplied by the total VOC emissions to determine HAP emissions.

Emissions are summarized in the table below.

Bottom Loading Load Rack Emissions (Gasoline)	
Pollutant	**Emissions (TPY)[1] [236,520,018 gal/yr]**
CO	9.88
NO_X	3.95
SO_2	0.069
VOC	42.46
HAPs	1.197

[1] See attached emission calculation spreadsheets for details.

Tank Farm Emissions

Emissions from permitted tanks (Tank Nos. 1, 2, 7, 9, 11, and 13) are calculated using EPA's *Tanks 4.09d* software program (see Appendix E, *Kahului Terminal Tank Emissions* of the permit renewal application). The software estimates VOC and HAP emissions from fixed- and floating-roof storage tanks according to the procedures from AP-42 Section 7.1 (11/06), *Organic Liquid Storage Tanks*. In performing the calculations, tank input data (i.e., tank dimensions, seal type, construction type, annual throughput, and meteorological conditions) and physical properties of stored products (i.e., density, molecular weight, and Reid vapor pressure) are used. Vapor mass fractions of compounds for stored products (gasoline and denatured ethanol) are multiplied by the total VOC emissions to determine total HAP emissions.

Emissions are summarized in the table below.

Tank Farm Emissions	
Pollutant	**Emissions (TPY)[1]**
VOC	14.00
HAPs	0.38

[1] See attached emission calculation spreadsheets for details.

Equipment Leak Emissions

Fugitive VOCs from piping components (i.e., valves, fittings, pump seals, etc.) are determined based on the emission factors from U.S. EPA's "*Protocol for Equipment Leak Emission Estimates*" (11/95). The numbers of piping components are updated since the previous permit application. Vapor mass fractions for compounds of gasoline are multiplied by the total VOC emissions to determine HAP emissions.

Emissions are summarized in the table below.

Equipment Leak Emissions	
Pollutant	**Emissions (TPY)[1] [8,760 hr/yr]**
VOC	0.94
HAPs	0.027

[1] See attached emission calculation spreadsheets for details..

Facility-Wide Emissions
Total VOC and HAP emissions from Kahului Marketing Terminal are as follows:

Facility-Wide Emissions (TPY) [236,520,018 gal/yr]				
Pollutant	**Bottom Loading Load Rack**	**Tank Farm**	**Equipment Leaks**	**Total**
CO	9.88	-	-	9.88
NO_X	3.95	-	-	3.95
SO_2	0.069	-	-	0.069
VOC	42.46	14.00	0.94	57.40
HAPs	1.20	0.38	0.027	1.61

AMBIENT AIR QUALITY ASSESSMENT

An ambient air quality assessment (AAQA) is generally required for new sources or modified sources with emission increases. An AAQA is not conducted for this renewal because no changes or modifications are proposed that increase emissions from the VCU.

SIGNIFICANT PERMIT CONDITIONS

1. Incorporate provisions of 40 CFR Part 63 Subpart BBBBBB for the bottom loading load rack, gasoline storage tanks, and equipment in gasoline service.

   Reason: The facility is an area source bulk gasoline terminal that is subject to 40 CFR Part 63 Subpart BBBBBB requirements.

2. Incorporate provisions of 40 CFR Part 60 Subpart XX for the bottom loading load rack.

   Reason: The bottom loading load rack is subject to 40 CFR Part 60 Subpart XX requirements.

3. Incorporate provisions of 40 CFR Part 60 Subpart Kb for the gasoline storage tanks.

   Reason: The gasoline storage tanks are required to operate in accordance with 40 CFR Part 60 Subpart Kb as reference by 40 CFR Part 63 Subpart BBBBBB.

CONCLUSION

Potential emissions from Kahului Marketing Terminal are conservatively estimated for the worst-case scenario. Actual emissions from the facility should be lower. Based on the monitoring reports submitted, the bottom loading load rack did not exceed 5,631,429 barrels (236,520,018 gallons) of gasoline per rolling twelve-month (12-month) period in the past years. According to the annual source performance test reports submitted, VOC emission rate of the VCU has been consistently lower than the permit limit of 35 mg/l of gasoline loaded.

Recommend issuance of the renewal for the covered source permit subject to the incorporation of the significant permit conditions, thirty (30) day public comment, and forty-five (45) day EPA review.

Jing Hu
March 31, 2015